

The species has been frequently figured.

### *Diapheromera veliei*.

*Diapheromera veliei* Walsh, Proc. ent. soc. Philad., iii, 409-410 (1864).

Originally described from Nebraska, and since then reported only from that state and Illinois. I have seen specimens from Maryland (Uhler), Virginia (Wirt Robinson), Georgia (Morrison), Ohio, Southern Illinois (Thomas), Manitoba, Dallas Co. and Jefferson, Iowa (Allen), Lincoln, Valentine and Sand Hills, Nebr. (Bruner), Platte River, Nebr. (Hayden), Barber Co., Kans. (Bruner), Dallas, Tex. (Boll), Ringgold Barracks, Tex. (Schott), Pecos River (Capt. Pope), Albuquerque, N. Mex. (Bruner), Sancelito, Mex. (Palmer), San Pedro and Montelovez, Coahuila, Mex. (Palmer), and Venis Mecas and Sierra San Miguelito, San Luis Potosi, Mex. (Palmer).

### *Diapheromera mesillana* sp. nov.

♂. Slenderer than *D. femorata*, uniform greenish flavous, the antennae infuscated beyond the basal third, the thorax smooth, with an obscure median carina; subapical inferior spine of middle and hind femora rather slight. Mesothorax and metathorax (including median segment) of equal length. Seventh and ninth abdominal segments subequal in length and distinctly longer than the eighth, all equal in width and nowhere enlarged, the ninth rather feebly and angularly emarginate, exposing a small, transverse, apically arcuate, supraanal plate; cerci about as long as the ninth abdominal segment, rigidly straight, directed backward and not at all downward, slender, tapering, blunt tipped, externally convex, and internally concave.

Length of body, 55 mm.; head, 3 mm.; antennae, circa 37 mm.; mesothorax, 12.5 mm.; fore femora, 14.5 mm.; middle femora, 11 mm.; hind femora, 13.5 mm.

2 ♂. Between Mesilla and Las Cruces, N. Mex., June 30 (A. P. Morse).

## LIFE HISTORIES OF NORTH AMERICAN GEOMETRIDAE. — XXI.

BY HARRISON G. DYAR, WASHINGTON, D. C.

*Eudule mendica* Walk. This larva has proved unusually difficult and for no real reason. As early as 1871 Mr. W. Saunders published on the first stage, but was unable to go further as he could find nothing that the larvae would eat. I have tried the same experiment with equal ill success, till the fortunate discovery of the food plant by Mr. Lucock (Can. ent., xxx, 248, 1898) rendered the whole matter simple. The food plant was also independently discovered by

Mr. W. D. Kearfott, who has kindly presented to me an inflated larva and pupa shells.

The first stage has been described by Saunders, the last by Lucock, both briefly and the pupa has been remarked on by Hulst and Smith.

*Egg*. Suspended on a slender silken fibre which runs from one object to another so that the egg swings free in the air. In nature the eggs were found laid on sheep's

wool stuck on the base of a tree in a pasture, on horse hair in a similar location and on spider webs under the edges of rocks. Elliptical, flattened slightly on two sides but not so much as usual. Reticulations represented by rather smooth shallow dents, just indicated. The whole surface besides very finely but distinctly shagreened, the little flattened elevations all quite regular, rounded; slightly shining, pale yellowish, changing to pinkish yellow; size  $.8 \times .6 \times .5$  mm. Eggs from Keene Valley, New York, June 25th; Jefferson Highlands, New Hampshire, June 30th; Washington, D. C., May 31st.

*Stage I.* Very long, slender and looping with great rapidity till the food plant is found; when disturbed suddenly curl up in an irregular S-shape and keep still. Of normal Geometrid structure, abdominal feet on joints 10 and 13; segments annulate, not very regularly. Tubercles moderate, distinct, dark, a little elevated, normal, i and ii in line, iii above and before the spiracle, iv behind and below it, v sub-ventral; no sub-primaries. Setae short, stiff with small glandular tips. Head blackish; body sordid yellowish white, rather translucent. After eating, sordid grayish green, feet pale; no marks. At the end of the stage a broad irregularly powdery subdorsal band appears.

*Stage II.* Head strongly bilobed, round, flattened before, free from joint 2; black, lighter on the apices of the lobes before; width .6 mm. Body moderately slender, uniform, finely, but not distinctly, numerous annulate. Anal flap truncate, notched, anal feet with small plates; shields uncornified, concolorous. Tubercles small, black, iv on the elongated segments (5 to 10), on a large, rounded, elevated, black base; all distinct. Setae short, black, club-shaped at tip. Whitish, faintly green from the food a broad, diffuse, pulverulent purple-brown subdorsal band on joints 2 to 13, the feet also marked slightly with this color and tubercle iv surrounded by it. Spiracles black; feet normal.

*Stage III.* Head rounded, slightly squared at apex, not bilobed, erect, free from joint 2; black, whitish marked over the clypeus and in an erect line to the top of each lobe, joined by a transverse bar above the clypeus; width .8 mm. Body whitish, speckled by the distinct, though not large, slightly elevated black tubercles, shading to pale slate gray dorsally and ventrally. Segments numerous but not very strongly annulate. Dorsum irregularly speckled with brown, on thorax and less plainly on joints 10 to 13 forming a diffuse subdorsal band; a more evident spot behind the spiracle. Shields concolorous, not cornified. Body somewhat slender and elongated, cylindrical, smooth; all feet whitish.

*Stage IV.* Head cordate, erect, flattened before, the lobes slightly projecting in front, with an elevated tubercle i; whitish, gray mottled, a blackish shade about the sides and over the lower part of clypeus, reappearing in a patch on the inner side of the vertex of each lobe; width 1.2 mm. Body long and slender, cylindrical, uniform; joint 13 truncate, slightly concave posteriorly; anal feet narrowly triangular; no prongs. Central segments with a broad smooth space anteriorly, then about 15-annulate, not very distinctly, 12 of the annulets situated between tubercles i and ii, the end segments normally contracted. Flesh colored, shaded with greenish and sparsely brown dotted; on the thorax the dots still slightly indicate a subdorsal line, but posteriorly it is entirely broken up, forming a group of dorsal dottings on joint 9 and about tubercle iv on 8 and 9. Tubercles slightly prominent in blackish patches. Setae short, dark, directed obliquely posteriorly. No shields.

*Cocoon.* The larva is slung in a delicate, open, reticular web. I see no trace of the "girth" described by Riley and Smith and suppose the net was partly broken in their specimen giving rise to the appearance of a single strand.

*Pupa.* This hangs in the net with the

cast larval skin projecting behind. The shape is peculiar. Nearly straight along the ventral line, the head projecting a little ventrally and a slight indentation at base of wing cases. Dorsum angled at the mesonotum and first abdominal segment, then tapering to the anal segment; wing cases raised a little at their margins. No cremaster, the anal end smooth and rounded, glued firmly in the end of the cast skin, from which it is with difficulty dissociated. Integument soft and delicate; pupa motionless. Thickly overlaid purplish dots and mottlings on a whitish ground, interspersed with a few orange colored specks especially along the dorsal line posteriorly and about the spiracles; wing cases purplish shaded, somewhat wrinkly.

*Food plant* wild violet, on the leaves of which the larvae feed. Double brooded, the second generation said to hibernate as partly grown larvae. Doubtless this generation has more than four stages; the first generation is the one here described.

OCURRENCE OF MELANOPLUS EXTREMUS IN NORTHERN LABRADOR. — In 1864 during a summer spent on the Labrador Coast, I found a *Pezotettix*-like species of *Melanoplus*, with short wings, at Square Island, but the species was not determined.

Last summer Prof. E. B. Delabarre during his expedition to northern Labrador observed and collected some locusts, and kindly presented me with three specimens.

One is from Nachvak, collected at a point two miles inland from the harbor, and two others at Cape Mugford directly on the coast, at a point 300-400 feet above the level of the sea. The locusts were common locally, in spots. Dr. Scudder has kindly identified them as *Melanoplus extremus junius*. This is its first occurrence in the Labrador peninsula, the species occurring throughout British America and on the summit of Mt. Washington, N. H.

A. S. Packard.

OCURRENCE OF ANOPHELES QUADRIMACULATUS IN MAINE. — It may be well to note the northernmost point where an undoubted *Anopheles* has been found, and identified by an expert. In a list of Diptera named for me by Baron von Osten Sacken, the highest living authority on Diptera, and especially those of this country, is the name of this mosquito. The insect was collected and named for me about the years 1861-3. It was not uncommon at Brunswick, Maine. I am therefore familiar with this species, having taken it several times since that date. So far as I am aware no malaria has as yet been known to exist in Maine, and there at least *Anopheles* exists with a conscience clear *in re malariae*.

A. S. Packard.

CORRECTION — On p. 177, in the third column of the first table, the figures in the second and third lines should be 136 and not 16.

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